

## REMARKS/ARGUMENTS

### *Status of the Application*

Claims 1-7 are currently pending in the present application. Claims 3-7 are indicated to be allowable, and claims 1-2 stand rejected. Claim 1 has been amended, and finds support in the as-filed application at least at p. 4, ll. 16-28; p. 6, l. 33 – p. 7, l. 3; p. 9, ll. 12-28; and p. 10, l. 35 – p. 20, l. 29. No new matter has been added to the present application.

### *Claim Rejections – 35 U.S.C. § 102(b)*

Claims 1-2 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Popovic, *et al.* (U.S. Pat. No. 4,963,827 and “Popovic” hereinafter). Applicant respectfully traverses the rejection and requests reconsideration because Popovic fails to teach every element of the recited claims.

Applicant notes that Popovic discloses a magnetic field sensor 1 that is surrounded by a magnetic shield 2 made of a high permeability magnetic material. The shield 2 can be driven to magnetic saturation by way of an excitation coil, which subjects the field sensor to the magnetic field to be measured. When the shield 2 is not in magnetic saturation, the field sensor 1 is isolated from the magnetic field to be measured. (Col. 2, ll. 9-22).

In light of the foregoing amendments, Applicant respectfully submits that the Examiner’s rejection is moot because Popovic does not disclose all of the limitations of newly amended claim 1. In particular, Popovic fails to disclose a “Hall-effect device having a plurality of semiconductor regions including a primary working region for generating a Hall voltage *proportional to the magnitude of a current to be detected or measured*” as claimed. (Emphasis added).

The magnetic field sensor 1 of Popovic detects a magnetic field  $H_i$  corresponding to a magnetic field  $H_a$ . However, the magnetic field sensor 1 of Popovic does not generate a Hall voltage that is *proportional* to the magnitude of a current to be detected or measured.

The current  $i$  of the crossties 5 is used for saturation of the shield 2, and the current  $i$  is “chopped” for this purpose. (See col. 3, ll. 29-31). As a result, the magnetic field  $H_a$  is also chopped. By chopping the magnetic field  $H_a$ , the measurement is transferred to a frequency range in which noise is only of a thermal nature. (See col. 3, ll. 29-35). As can be

DOCKET NO.: TAK-0357  
Application No.: 09/724,979  
Office Action Dated: July 8, 2003

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seen in Fig. 4, the magnetic field  $H_i$  is equal to zero when  $i$  is zero, and is equal to  $H_a$  when  $i$  is sufficient to saturate the magnetic shield 2. Consequently, the magnitude of the magnetic field  $H_i$  is not proportional to a current  $i$  to be detected or measured.

Because Popovic does not recite all the limitations of claim 1 as amended, Applicant respectfully submits that Popovic does not anticipate claim 1. As claim 2 depends from claim 1, Applicant respectfully submits that claim 2 is also not anticipated by Popovic for the reasons explained above.

### CONCLUSION

For the foregoing reasons, Applicant respectfully submits that all of the claims of the present application patentably define over the prior art of record. Reconsideration of the Office Action and a Notice of Allowance are respectfully requested. In the event that the Examiner cannot allow the present application for any reason, the Examiner is encouraged to contact the undersigned attorney, Christos A. Ioannidi at (215) 564-8994, to discuss resolution of any remaining issues.

Respectfully submitted,

Date: December 4, 2003



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